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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
10/552,376	10/07/2005	Hua Chen	H0003955	9276
46507 7590 05/29/2008 HONEYWELL TURBO TECHNOLOGIES 23326 HAWTHORNE BOULEVARD, SUITE #200 TORRANCE, CA 90505				
EXAMINER				
VERDIER, CHRISTOPHER M				
ART UNIT		PAPER NUMBER		
3745				
MAIL DATE		DELIVERY MODE		
05/29/2008		PAPER		

**Please find below and/or attached an Office communication concerning this application or proceeding.**

The time period for reply, if any, is set in the attached communication.

### Office Action Summary

**Application No.**

10/552,376

**Applicant(s)**

CHEN, HUA

**Examiner**

Christopher Verdier

**Art Unit**

3745

**Period for Reply** -- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) OR THIRTY (30) DAYS, WHICHEVER IS LONGER, FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

**Status**

- 1) ☒ Responsive to communication(s) filed on 28 January 2008.
- 2a) ☒ This action is **FINAL**. 2b) ☐ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

**Disposition of Claims**

- 4) ☒ Claim(s) 1, 4-6, 9 and 11-16 is/are pending in the application.
- 4a) Of the above claim(s) \_\_\_\_\_ is/are withdrawn from consideration.
- 5) ☐ Claim(s) \_\_\_\_\_ is/are allowed.
- 6) ☒ Claim(s) 1, 4-6, 9 and 11-16 is/are rejected.
- 7) ☐ Claim(s) \_\_\_\_\_ is/are objected to.
- 8) ☐ Claim(s) \_\_\_\_\_ are subject to restriction and/or election requirement.

**Application Papers**

- 9) ☐ The specification is objected to by the Examiner.
- 10) ☒ The drawing(s) filed on 10-7-05 is/are: a) ☒ accepted or b) ☐ objected to by the Examiner.
- Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).
- Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).
- 11) ☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

**Priority under 35 U.S.C. § 119**

- 12) ☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) ☐ All b) ☐ Some \* c) ☐ None of:
1. ☐ Certified copies of the priority documents have been received.
  2. ☐ Certified copies of the priority documents have been received in Application No. \_\_\_\_\_.
  3. ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

\* See the attached detailed Office action for a list of the certified copies not received.

**Attachment(s)**

- 1) ☒ Notice of References Cited (PTO-892)
- 2) ☐ Notice of Draftsperson's Patent Drawing Review (PTO-948)
- 3) ☐ Information Disclosure Statement(s) (PTO/SB-08)  
Paper No(s)/Mail Date \_\_\_\_\_
- 4) ☐ Interview Summary (PTO-413)  
Paper No(s)/Mail Date \_\_\_\_\_
- 5) ☐ Notice of Informal Patent Application
- 6) ☐ Other: \_\_\_\_\_

Applicant's amendment dated January 28, 2008 has been carefully considered but is non-persuasive. The new declaration is acceptable. The amendment to the specification overcomes the objection to the drawings set forth in the first Office action. The new abstract is acceptable. The specification has been amended to correct the informalities set forth therein. The claims have been amended to eliminate improper multiple dependencies. The claims have been amended to overcome the rejections under 35 USC 112, second paragraph set forth in the first Office action. Correction of these matters is noted with appreciation.

Applicant has argued concerning Japanese Patent 5-106,598 and United Kingdom Patent 636,290 that none of these references discloses a relative discontinuity in the region of the trailing edge in combination with the discontinuity forming a downstream-facing blocking face adapted to impede an upstream flow of gas between the shroud and the wheel, the blocking face extending across the flow path to form a sharp edge connecting the blocking face to a smoothly curving surface upstream of the discontinuity. This argument is persuasive.

With regard to Yoshinaga 4,395,197, Applicant has argued that this reference does not disclose the above features, but has not pointed to specific elements in Yoshinaga to support this argument. The examiner disagrees for the reasons set forth below. Additionally, Fabri 3,824,029 discloses the above features, as set forth below.

***Claim Objections***

Claims 16/1 and 16/4 are objected to because of the following informalities: Appropriate correction is required.

In claim 16, line 3, -- the -- should be inserted after “;”.

***Claim Rejections - 35 USC § 112***

The following is a quotation of the second paragraph of 35 U.S.C. 112:

The specification shall conclude with one or more claims particularly pointing out and distinctly claiming the subject matter which the applicant regards as his invention.

Claims 16/1 and 16/4 are rejected under 35 U.S.C. 112, second paragraph, as being indefinite for failing to particularly point out and distinctly claim the subject matter which applicant regards as the invention. In claim 16, line 3, “the first sharp edge” lacks antecedent basis and is unclear as to which sharp edge is referred to.

***Claim Rejections - 35 USC § 102***

The following is a quotation of the appropriate paragraphs of 35 U.S.C. 102 that form the basis for the rejections under this section made in this Office action:

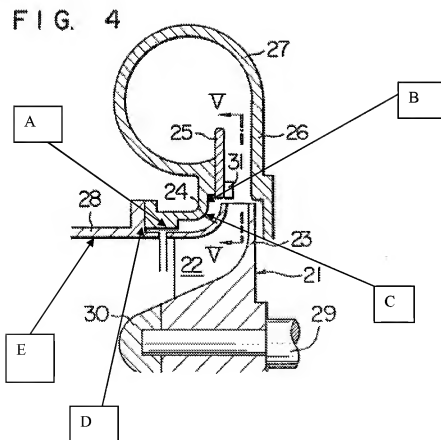
A person shall be entitled to a patent unless --

(b) the invention was patented or described in a printed publication in this or a foreign country or in public use or on sale in this country, more than one year prior to the date of application for patent in the United States.

Claims 1, 4, 5, 6, 9, 11, 12/6, 13/6, 14/6, 15/6, 12/9, 13/9, 14/9, 12/4, 13/4, 14/4, 15/1, 15/4, and 15/11 are rejected under 35 U.S.C. 102(b) as being anticipated by Yoshinaga 4,395,197. Disclosed is a compressor comprising a compressor wheel 21 having compressor

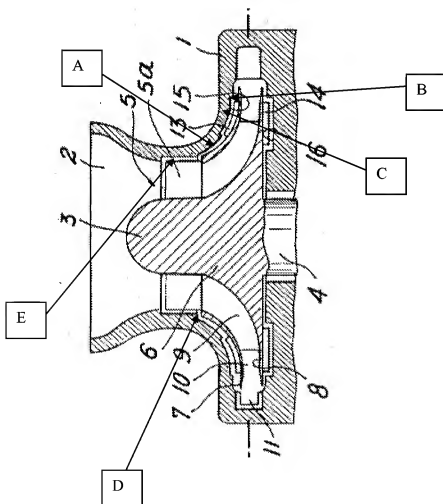
blades 22 and being mounted for rotation on a shaft 29, each blade being characterized by an upstream leading edge and a downstream trailing edge, and a shroud 27/28 mounted adjacent the wheel and defining a gas flow path between the shroud and the blades from a compressor inlet to a diffuser outlet, wherein in cross-section the shroud forms a surface A along the flow path, the surface being characterized by a profile that includes a relative discontinuity B in the region of the trailing edge, wherein the discontinuity forms a downstream-facing blocking face adapted to impede an upstream flow of gas between the shroud and the wheel, the blocking face extending across the flow path to form a sharp edge connecting the blocking face to a smoothly curving surface C upstream of the discontinuity. The cross-section profile of the shroud surface along the flow path is further characterized by a second relative discontinuity D that is in the region of the leading edge, wherein the second relative discontinuity forms a second downstream-facing blocking face adapted to impede an upstream flow of gas between the shroud and the wheel, the second blocking face extending across the flow path to form a sharp edge connecting the second blocking face to a second smooth surface E upstream of the second discontinuity. The second discontinuity is located upstream of the leading edge of the wheel blades. The second discontinuity is spaced from the leading edge of the wheel blades by a distance of the same order as the axial clearance of the trailing edge from the compressor housing. The or each downstream-facing blocking face comprises a planar surface cut into the curving surface. The second downstream-facing blocking face comprises a planar surface cut into the curving surface, and the planar surface is perpendicular to the axis of the shaft. The radial extent of the second discontinuity is of the same order as the radial clearance between the trailing edge and the housing. The sizes of the first and second discontinuities are closely similar. The shapes of the

first and second discontinuities are closely similar. Concerning claim 15, the term “turbocharger” is recited in the preamble of the claim and has not been given patentable weight. A preamble is generally not accorded any patentable weight where it merely recites the purpose of a process or the intended use of a structure, and where the body of the claim does not depend on the preamble for completeness but, instead, the process steps or structural limitations are able to stand alone. See *In re Hirao*, 535 F.2d 67, 190 USPQ 15 (CCPA 1976) and *Kropa v. Robie*, 187 F.2d 150, 152, 88 USPQ 478, 481 (CCPA 1951). Note the annotated figure below.



Claims 1, 4, 5, 9, 11, 13/9, 14/9, 13/4, 14/4, 15/1, 15/4, and 15/11 are rejected under 35 U.S.C. 102(b) as being anticipated by Fabri 3,824,029. Disclosed is a compressor comprising a compressor wheel 3/6 having compressor blades 9 and being mounted for rotation on a shaft 4, each blade being characterized by an upstream leading edge and a downstream trailing edge, and a shroud 1 mounted adjacent the wheel and defining a gas flow path between the shroud and the blades from a compressor inlet to a diffuser outlet, wherein in cross-section the shroud forms a surface A along the flow path, the surface being characterized by a profile that includes a relative discontinuity B in the region of the trailing edge, wherein the discontinuity forms a downstream-facing blocking face adapted to impede an upstream flow of gas between the shroud and the wheel, the blocking face extending across the flow path to form a sharp edge connecting the blocking face to a smoothly curving surface C upstream of the discontinuity. The cross-section profile of the shroud surface along the flow path is further characterized by a second relative discontinuity D that is in the region of the leading edge, wherein the second relative discontinuity forms a second downstream-facing blocking face adapted to impede an upstream flow of gas between the shroud and the wheel, the second blocking face extending across the flow path to form a sharp edge connecting the second blocking face to a second smooth surface E upstream of the second discontinuity. The second discontinuity is located upstream of the leading edge of the wheel blades. The or each downstream-facing blocking face comprises a planar surface cut into the curving surface. The second downstream-facing blocking face comprises a planar surface cut into the curving surface, and the planar surface is perpendicular to the axis of the shaft. The

sizes of the first and second discontinuities are closely similar. The shapes of the first and second discontinuities are closely similar. Concerning claim 15, the term “turbocharger” is recited in the preamble of the claim and has not been given patentable weight. A preamble is generally not accorded any patentable weight where it merely recites the purpose of a process or the intended use of a structure, and where the body of the claim does not depend on the preamble for completeness but, instead, the process steps or structural limitations are able to stand alone. See *In re Hirao*, 535 F.2d 67, 190 USPQ 15 (CCPA 1976) and *Kropa v. Robie*, 187 F.2d 150, 152, 88 USPQ 478, 481 (CCPA 1951). Note the annotated figure below.





***Claim Rejections - 35 USC § 103***

The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

Claims 16/1 and 16/4, as far as they are definite and understood, are rejected under 35 U.S.C. 103(a) as being unpatentable over Fabri 3,824,029 in view of Trumpler 2,471,174. Fabri discloses a compressor substantially as claimed as set forth above, including the blocking face at B forming a second sharp edge on an opposite side of the blocking face from the first sharp edge, but does not disclose that the second sharp edge connects the blocking face to a smoothly curving surface downstream of its respective discontinuity.

Trumpler shows a centrifugal compressor having a blocking face (unnumbered, attached to C and opposite 34a) forming a second sharp edge on an opposite side of the blocking face from a first sharp edge, the second sharp edge connecting the blocking face to a smoothly curving surface 5a downstream of its respective discontinuity, for the purpose of providing recirculation to prevent surge.

It would have been obvious at the time the invention was made to a person having ordinary skill in the art to form the compressor of Fabri such that the second sharp edge connects

the blocking face to a smoothly curving surface downstream of its respective discontinuity, as taught by Trumpler, for the purpose of providing recirculation to prevent surge.

Applicant's amendment necessitated the new ground(s) of rejection presented in this Office action. Accordingly, **THIS ACTION IS MADE FINAL**. See MPEP § 706.07(a). Applicant is reminded of the extension of time policy as set forth in 37 CFR 1.136(a).

A shortened statutory period for reply to this final action is set to expire THREE MONTHS from the mailing date of this action. In the event a first reply is filed within TWO MONTHS of the mailing date of this final action and the advisory action is not mailed until after the end of the THREE-MONTH shortened statutory period, then the shortened statutory period will expire on the date the advisory action is mailed, and any extension fee pursuant to 37 CFR 1.136(a) will be calculated from the mailing date of the advisory action. In no event, however, will the statutory period for reply expire later than SIX MONTHS from the date of this final action.

Any inquiry concerning this communication or earlier communications from the examiner should be directed to Christopher Verdier whose telephone number is (571) 272-4824. The examiner can normally be reached on Monday-Friday from 10:00-6:30.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Edward K. Look can be reached on (571) 272-4820. The fax phone number for the organization where this application or proceeding is assigned is 571-273-8300.

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see <http://pair-direct.uspto.gov>. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free). If you would like assistance from a USPTO Customer Service Representative or access to the automated information system, call 800-786-9199 (IN USA OR CANADA) or 571-272-1000.

/Christopher Verdier/  
Primary Examiner, Art Unit 3745

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